

What is claimed is:

1. A medical treatment system having a long inserting portion which is inserted in a sample, the medical treatment system comprising:

a positional relationship detecting unit which detects a relative positional relationship between the sample and a distal-end portion of the inserting portion;

an information input unit which can input predetermined information; and

a storing unit which stores the predetermined information and the positional information detected by the positional relationship detecting unit with a correlation therebetween.

2. An endoscope system having an inserting portion which is inserted in a sample, the endoscope system comprising:

a positional relationship detecting unit which detects a relative positional relationship between the sample and a distal-end portion of the inserting portion;

an information input unit which can input predetermined information; and

a storing unit which stores the predetermined information and the positional information detected by the

positional relationship detecting unit with a correlation therebetween.

3. An endoscope system according to Claim 2, wherein the positional relationship detecting unit is an inserting-length detecting unit which detects the inserting length of the sample in the inserting portion of the endoscope.

4. An endoscope system according to Claim 3, wherein the positional relationship detecting unit has at least one of a bending angle detecting unit which detects a bending angle of a bending portion of the endoscope and a turn angle detecting unit which detects a turn angle of the inserting portion of the endoscope.

5. An endoscope system according to Claim 2, wherein the predetermined information is at least one of endoscope image information in the sample picked up by the endoscope, character information, a virtual endoscope image generated based on three-dimensional data of the sample, and inserting-operation information.

6. An endoscope inserting-operation program for inserting an endoscope inserting portion in a sample, the endoscope inserting-operation program comprising:

a positional relationship detecting step for detecting a relative positional relationship between the sample and a distal-end portion of the inserting portion;

an information input step for inputting predetermined information; and

a storing step for storing the predetermined information and the positional information detected by the positional relationship detecting step with a correlation therebetween.

7. An endoscope inserting-operation program according to Claim 6, wherein the positional relationship detecting step is an inserting-length detecting step which detects the inserting length of the sample in the inserting portion of the endoscope.

8. An endoscope inserting-operation program according to Claim 7, wherein the positional relationship detecting step has at least one of a bending angle detecting step which detects a bending angle of a bending portion of the endoscope and a turn angle detecting step which detects a turn angle of the inserting portion of the endoscope.

9. An endoscope inserting-operation program according to Claim 6, wherein the predetermined information is at

least one of endoscope image information in the sample picked up by the endoscope, character information, a virtual endoscope image generated based on three-dimensional data of the sample, and inserting-operation information.

10. An endoscope system having an inserting portion which is inserted in a sample, the endoscope system comprising:

a storing unit which stores predetermined information which is previously correlated with relative positional information between the sample and a distal-end portion of the inserting portion;

a positional relationship detecting unit which detects a relative positional relationship between the sample and the distal-end portion of the inserting portion; and

an information output unit which can output, from the storing portion, predetermined information which is correlated with the positional relationship information detected by the positional relationship detecting unit.

11. An endoscope system according to Claim 10, further comprising:

a driving unit which performs the operation for inserting the inserting portion in the sample based on the predetermined information outputted from the information

output unit.

12. An endoscope system according to Claim 10, wherein the predetermined information is at least one of image information in the sample picked up by the endoscope, character information, an virtual image generated based on three-dimensional data of the sample, and inserting-operation information.

13. An endoscope inserting-operation program for inserting an endoscope inserting portion in a sample, the endoscope inserting-operation program comprising:

a positional relationship detecting step for detecting a relative positional relationship between the sample and a distal-end portion of the inserting portion; and

an information output step for outputting predetermined information corresponding to positional information detected by the positional relationship detecting step, from a storing unit which previously stores predetermined information that is correlated with the relative positional relationship between the sample and the distal-end portion of the inserting portion.

14. An endoscope inserting-operation program according to Claim 13, wherein the positional relationship detecting

step is an inserting-length detecting step for detecting the inserting length of the sample in the inserting portion of the endoscope.

15. An endoscope inserting-operation program according to Claim 14, wherein the positional relationship detecting step has at least one of a bending angle detecting step which detects a bending angle of a bending portion of the endoscope and a turn angle detecting step which detects a turn angle of the inserting portion of the endoscope.

16. An endoscope inserting-operation program according to Claim 13, wherein the predetermined information is at least one of endoscope image information in the sample picked up by the endoscope, character information, a virtual image generated based on three-dimensional data of the sample, and inserting-operation information.

17. An endoscope apparatus comprising:

a detecting unit which detects inserting-operation information of an endoscope inserting portion which is inserted in a sample;

a storing unit which stores standard inserting-operation information that is detected by the detecting unit and an endoscope image obtained by picking up an image of

the sample at the position of a distal-end portion of the endoscope inserting portion upon the inserting operation with a correlation therebetween; and

a control unit which compares the standard inserting-operation information stored in the storing unit with the inserting-operation information obtained from the detecting unit during the operation and which monitors the inserting operation situation of the endoscope inserting portion.

18. An endoscope apparatus according to Claim 17, wherein the inserting-operation information is at least one of inserting-length information for measuring the inserting length of the endoscope inserting portion, inserting speed information for measuring the inserting speed of the inserting portion, turn angle information for measuring a turn angle of the inserting portion, and angle information for measuring an angle of a bending portion of the inserting portion.

19. An endoscope apparatus according to Claim 17, wherein the storing unit adds inserting-operation instructing comment information to a corresponding portion of the stored inserting-operation information and endoscope image information with the correlation therebetween, and stores it.

20. An endoscope apparatus according to Claim 17, wherein the control unit further compares the endoscope image at the position of the distal-end portion of the inserting portion upon the inserting operation, the endoscope image is stored in the storing unit correlated with the standard inserting-operation information, with the endoscope image at the position of the distal-end portion of the inserting portion upon the inserting operation during the operation, and monitors the situation of the endoscope inserting operation.

21. An endoscope apparatus according to Claim 17 or 20, further comprising:

a notifying unit which notifies of the inserting operation situation and an operating instruction based on a comparison and analysis result of the control unit.

22. An endoscope apparatus according to Claim 19, wherein the inserting operation instructing comment additionally stored in the storing unit is notified from the notifying unit based on the inserting length of the inserting portion which is detected by a detecting unit for detecting the inserting operation information.



23. An endoscope apparatus according to Claim 17, wherein the control unit sequentially analyzes the endoscope image obtained from the distal-end portion of the inserting portion and the inserting operation information obtained from the detecting unit by comparing with the standard inserting-operation information read from the storing unit and the endoscope image correlated with the operation information, outputs an analysis result to the notifying unit, monitors the endoscope inserting operation situation of the endoscope of the operator, and gives an instruction for the inserting operation.

24. An endoscope inserting-operation program for inserting an inserting portion of an endoscope in a sample, comprising:

- a detecting step for detecting inserting-operation information of the endoscope inserting portion that is inserted in the sample;

- a storing step for storing standard inserting-operation information that is detected by the detecting unit and an endoscope image obtained by picking up an image of the sample at the position of a distal-end portion of the endoscope inserting portion upon the inserting operation with a correlation between; and

- a comparing and monitoring step for comparing the

standard inserting-operation information stored in the storing step with the inserting-operation information obtained by the detecting step during the operation and of monitoring the situation of the inserting operation of the endoscope inserting portion.

25. An endoscope inserting-operation program according to Claim 24, further comprising:

an additionally recording step for adding inserting-operation instructing comment information to a corresponding portion of the stored inserting-operation information and endoscope image information with the correlation therebetween, and for storing it.

26. An endoscope inserting-operation program according to Claim 25, further comprising:

a notifying step for notifying of the inserting-operation instructing comment that is additionally stored by the additionally recording step based on the inserting length of the inserting portion that is detected by a detecting step for detecting the inserting-operation information.